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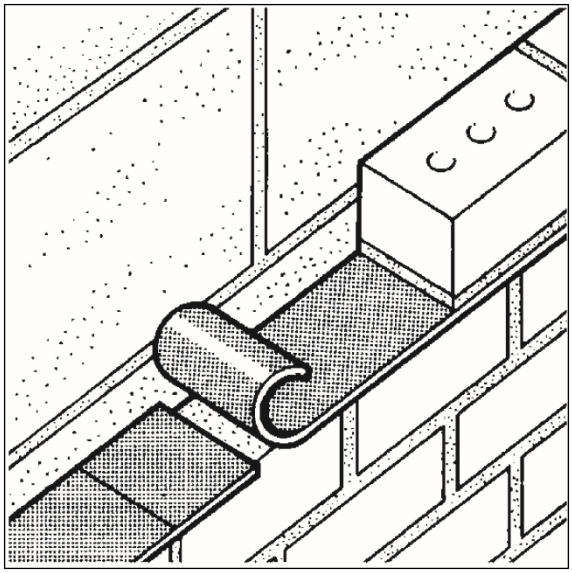
Agrément Certificate
21/5960
Product Sheet 1

ALDERBURGH DAMP-PROOF COURSE SYSTEMS

ALDERCOURSE GRA GAS RESISTANT DPC

This Agrément Certificate Product Sheet(1) relates to Aldercourse GRA Gas Resistant DPC, a polymer modified bitumen membrane incorporating an aluminium foil inter-ply and reinforced with a non-woven polyester fabric, for use as a gas-resistant, damp-proof course in masonry walls.

(1) Hereinafter referred to as 'Certificate'.



CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.

KEY FACTORS ASSESSED

Behaviour under load — the product will not extrude under load, up to the point of compressive failure of the wall (see section 6).

Properties in relation to fire — the Certificate holder has not declared a classification for the product in accordance with BS EN 13501-1 : 2018, and so its use is restricted by the national Building Regulations in some cases (see section 7).

Resistance to water and water vapour — the product will provide an effective barrier against liquid water and water vapour (see section 8).

Resistance to underground gases — the product will provide an effective barrier against radon and landfill gases (see section 9).

Compatibility with other materials — within normal construction, the product is compatible with all materials with which it will be in contact, with the exception of timber preservatives based on tar oils (see section 10).

Durability — when properly specified and installed, the product, in normal circumstances, will remain effective for the lifetime of the building (see section 12).

The BBA has awarded this Certificate to the company named above for the product described herein. This product has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

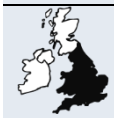
On behalf of the British Board of Agrément

Date of First issue: 26 November 2021

Hardy Giesler
Chief Executive Officer

Regulations

In the opinion of the BBA, Aldercourse GRA Gas Resistant DPC, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations (the presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):



The Building Regulations 2010 (England and Wales) (as amended)

Requirement:	**A1**	**Loading**
Comment:		The dpc will not extrude under load, up to the point of failure of the wall, and will not adversely affect the ability of a properly designed and built wall to sustain and transmit compression loads. The presence of a dpc can reduce the shear and tensile strength of a wall at that point, and design may need to take account of this. See section 6 of this Certificate.
Requirement:	**B4(1)**	**External fire spread**
Comment:		The use of the product is restricted by this Requirement. See section 7 of this Certificate.
Requirement:	**C1(2)**	**Site preparation and resistance to contaminants**
Comment:		The product can contribute to satisfying this Requirement. See sections 9.1 and 9.2 of this Certificate.
Requirement:	**C2(a)**	**Resistance to moisture**
Comment:		Properly installed in a correctly designed structure, the product will form an effective barrier to the movement of water within the wall, enabling compliance with this Requirement. See section 8 of this Certificate.
Regulation:	**7(1)**	**Materials and workmanship**
Comment:		The product is an acceptable material. See section 12 and the *Installation* part of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	**8(1)**	**Durability, workmanship and fitness of materials**
Comment:		The use of the product satisfies the requirements of this Regulation. See section 12 and the *Installation* part of this Certificate.
Regulation:	**9**	**Building standards applicable to construction**
Standard:	1.1(a)(b)	Structure
Comment:		The dpc will not extrude up to the point of failure of the wall, and will not adversely affect the ability of the properly designed and built wall to sustain and transmit compression loads, with reference to clauses 1.1.1$^{(1)(2)}$ and 1.1.3$^{(1)(2)}$ of this Standard. See section 6 of this Certificate.
Standard:	3.1	Site preparation — harmful and dangerous substances
Standard:	3.2	Site preparation — protection from radon gas
Comment:		The product can contribute to satisfying the requirements of these Standards, with reference to clauses 3.1.6$^{(1)(2)}$, 3.2.0$^{(1)(2)}$, 3.2.1$^{(2)}$ and 3.2.2$^{(1)}$. See sections 9.1 and 9.2 of this Certificate.
Standard:	3.4	Moisture from the ground
Standard:	3.10	Precipitation
Comment:		Properly installed in a correctly designed structure, the product forms an effective barrier to the movement of water within the wall, enabling compliance with these Standards, with reference to clauses 3.4.1$^{(1)(2)}$ and 3.10.1$^{(1)(2)}$. See section 8 of this Certificate.

Standard:	7.1(a)	Statement of sustainability
Comment:		The product can contribute to satisfying the relevant requirements of Regulation 9, Standards 1 to 6, and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard.
Regulation:	**12**	**Building standards applicable to conversions**
Comment:		All comments given for the product under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1[(1)(2)] and Schedule 6[(1)(2)]. (1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).

The Building Regulations (Northern Ireland) 2012 (as amended)

Regulation:	**23(a)(i) (iii)(b)(i)**	**Fitness of materials and workmanship**
Comment:		The product is an acceptable material. See section 12 and the *Installation* part of this Certificate.
Regulation:	**26**	**Site preparation and resistance to contaminants**
Comment:		The product can contribute to satisfying this Regulation. See sections 9.1 and 9.2 of this Certificate.
Regulation:	**28(a)**	**Resistance to moisture and weather**
Comment:		Properly installed in a correctly designed structure, the product will form an effective barrier to the movement of water within the wall, enabling compliance with this Regulation. See section 8 of this Certificate.
Regulation:	**30**	**Stability**
Comment:		The dpc will not extrude, up to the point of failure of the wall, and will not adversely affect the ability of a properly designed and built wall to sustain and transmit compression loads. See section 6 of this Certificate.

Construction (Design and Management) Regulations 2015
Construction (Design and Management) Regulations (Northern Ireland) 2016

Information in this Certificate may assist the client, designer (including Principal Designer) and contractor (including Principal Contractor) to address their obligations under these Regulations.

See sections: 1 *Description* (1.2) and 3 *Delivery and site handling* (3.7 and 3.8) of this Certificate.

Additional Information

NHBC Standards 2021

In the opinion of the BBA, Aldercourse GRA Gas Resistant DPC, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards,* Chapter 6.1 *External masonry walls.*

CE marking

The manufacturer has taken the responsibility of CE marking the product in accordance with harmonised European Standard BS EN 14967 : 2006.

Technical Specification

1 Description

1.1 Aldercourse GRA Gas Resistant DPC is a sand-surfaced, polymer-modified bitumen membrane incorporating an aluminium foil inter-ply and reinforced with a non-woven polyester fabric.

1.2 The rolls are manufactured to the nominal dimensions and characteristics given in Table 1.

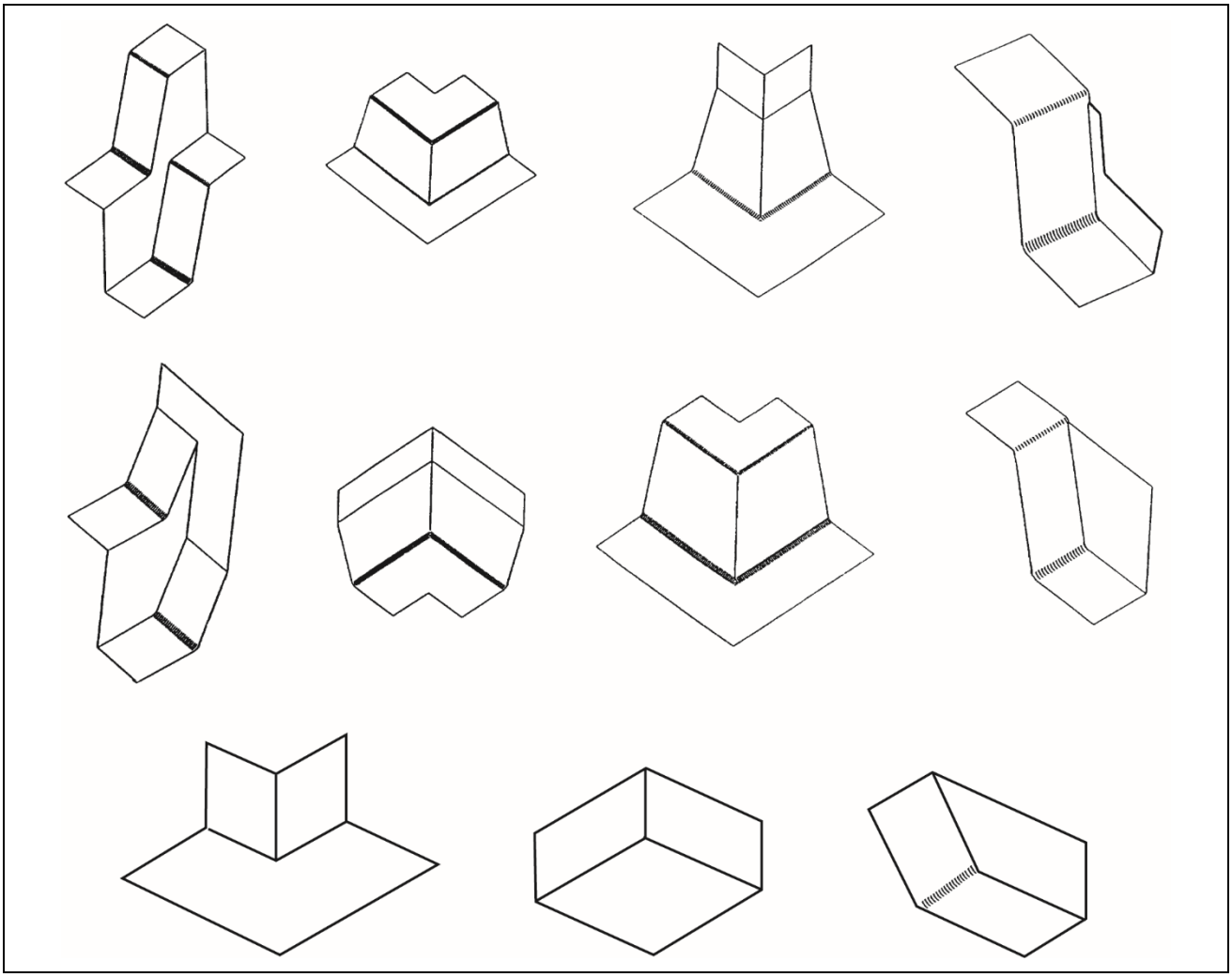
Table 1 Nominal characteristics

Characteristic (unit)	Value
Thickness (mm)	3
Mass ($kg \cdot m^{-2}$)	4.01
Roll length (m)	8
Roll width (mm)	100 to 1000
Watertightness (2 kPa)	Pass
Durability (artificial ageing)	Pass
Resistance to low temperature (°C)	–15
Resistance to impact (mm)	>300

1.3 Other materials for use with the product include:

- Aldercourse GRA Preformed Cavity Tray Units — 1.2 mm thick polymer sheet which is suitable for high frequency welding. The units are available in a range of shapes for angles, changes in level and stopends. Typical examples are shown in Figure 1; units to other designs can be fabricated to order in consultation with the Certificate holder
- Gastite Tape — a double sided, self-adhesive tape, protected by a silicone release film, used to seal laps between dpc and dpc, and between dpc and Aldercourse GRA Preformed Cavity Tray Units
- Aldercourse GRA DPC Joint Support System — manufactured from a piece of twin-walled polypropylene 150 x 315 mm with the internal reinforcing webs running across the width and an additional twin-walled polypropylene reinforcing pad on the underside with the internal reinforcing webs running perpendicular to those in support, for added strength
- Aldercourse GRA DPC Fixing Strip — 2 m long by 25 mm wide by 3 mm thick plastic strip, pre-drilled with 6 mm diameter holes at 150 mm centres, used to secure surface fixed cavity tray damp-proof courses to substrate
- Tac Primer — for preparation of masonry prior to bonding of damp-proof courses to the substrate.

Figure 1 Standard Aldercourse GRA Preformed Cavity Tray Units



2 Manufacture

2.1 The reinforcement is impregnated and coated, in a continuous process, with the polymer-modified bitumen compound. Dried sand is applied to both sides of the dpc prior to cooling.

2.2 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control operated by the manufacturer are being maintained.

2.3 The management system of Alderburgh Ltd has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 by QSL (Certificate PACW10450302).

3 Delivery and site handling

3.1 Aldercourse GRA Gas Resistant DPC is delivered to site in rolls secured with a paper wrapper bearing the Certificate holder's name, product details and the BBA logo incorporating the number of this Certificate.

3.2 Rolls must be stored on end and protected from extremes of temperature. The product must not be allowed to come into contact with organic solvents.

3.3 Gastite Tape is supplied in 25 by 75 mm rolls in cardboard cartons bearing a label with a description of the contents and the BBA logo incorporating the number of this Certificate.

3.4 Aldercourse GRA DPC Joint Support System is supplied in cardboard boxes complete with a roll of jointing tape. A label bearing the BBA logo incorporating the number of this Certificate is affixed to each box.

3.5 Aldercourse GRA DPC Fixing Strip is supplied in packs of 20 strips. The packs are protected by a plastic sleeve and a label bearing the BBA logo incorporating the number of this Certificate is affixed to each pack.

3.6 Aldercourse GRA Preformed Cavity Tray Units are delivered to site in polythene bags. A label bearing a description of the contents and the BBA logo incorporating the number of the appropriate Certificate is affixed to each bag.

3.7 Tac Primer is delivered to site in 25 litre drums.

3.8 The Certificate holder has taken the responsibility of classifying and labelling the product under the *CLP Regulation (EC) No 1272/2008* on the *classification, labelling and packaging of substances and mixtures.* Users must refer to the relevant Safety Data Sheet(s)**.**

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Aldercourse GRA Gas Resistant DPC.

Design Considerations

4 Use

4.1 Aldercourse GRA Gas Resistant DPC, when correctly specified and installed in accordance with this Certificate, is satisfactory for use as a gas-resistant horizontal, vertical, or stepped dpc (including cavity trays) in brick, block, stone or concrete.

4.2 General standards of good design practice are given in BS EN 1996-1-1 : 2005, BS EN 1996-1-2 : 2005, BS EN 1996-2 : 2006 and BS EN 1996-3 : 2006, and their UK National Annexes, and PD 6697 : 2019.

4.3 The product must be used in conjunction with a compatible gas-resistant membrane to restrict the ingress of gas into buildings. The Certificate holder must be consulted for suitable products and recommended detailing practices.

5 Practicability of installation

The product must only be installed by a competent general builder, or a contractor, experienced with this type of product.

6 Behaviour under load

6.1 The product will not adversely affect the ability of a properly designed wall to sustain and transmit compression loads. Creep tests carried out on the product indicate that it will not significantly extrude at loads of up to 1 $N \cdot mm^{-2}$ and is suitable for use under low compressive stress conditions as defined in BS 6398 : 1983.

6.2 The presence of a dpc can reduce the shear and tensile (and therefore, bending) strengths of a wall at that point and the design of the structure should take account of this. Shear tests carried out on the product gave a characteristic initial shear strength for the product of 0.31 $N \cdot mm^{-2}$.

7 Properties in relation to fire

The Certificate holder has not declared a classification for the product to BS EN 13501-1 : 2018, and so it should not be used on buildings in England or Wales that have a storey at least 18 m above ground level and which contain one or more dwellings, an institution, a room for residential purposes (excluding any room in a hostel, hotel or boarding house), student accommodation, care homes, sheltered housing, hospitals or dormitories in boarding schools.

8 Resistance to water and water vapour

When correctly installed, the product will provide an effective barrier against liquid water and water vapour either from a source external to the structure, or from one part of the structure to another.

9 Resistance to underground gases

9.1 The product, when properly sealed and consolidated, will restrict the ingress of radon, methane and carbon dioxide gases from naturally occurring sources into the wall cavity

9.2 Measured gas permeability/diffusion values on Aldercourse GRA Gas Resistant DPC are given in Table 2.

Table 2 Measured gas transmission rates of Aldercourse GRA Gas Resistant DPC

Gas	Method	Result
Methane	ISO 15105-1	<2 ml·m^{-2}·day^{-1}·atm^{-1}
Radon	K124/02/95(1)	9.9 x 10^{-15} m^3·s (jointed) 1.5 x 10^{-14} m^3·s (membrane)
Carbon dioxide	BS EN 1062-6(2)	3.71 x 10^{-7} cm^{2}s^{-2} (membrane) 1.03 x 10^{-6} cm^{2}s^{-2} (jointed)

(1) Czech Technical University (CIA accredited method).
(2) Taylor Wood row Technology UKAS accredited in-house test procedure TP950/05/13569 - Issue 1 (Generally in accordance with BS EN 1062-6 : 2002).

9.3 Buildings in areas of risk from radon or landfill gases should be constructed in accordance with the recommendations of BRE Report BR 211, BRE Report BR 212 and BRE Digest 414. Guidance is given in the *Ground Gas Handbook 2009* and the Certificate holder's technical literature.

10 Compatibility with other materials

10.1 The product is compatible with all normal construction materials with which it is likely to be in contact in normal construction, with the exception of timber preservatives containing creosote, tar oils or pitch.

10.2 The product contains an aluminium foil inter-ply which may be subject to corrosion under alkaline conditions if damage to the membrane occurs and the foil is exposed.

11 Maintenance

As the product is confined within the wall structure and has suitable durability (see section 12), maintenance is not required. However, it must be ensured that damage occurring before enclosure is repaired (see section 16).

12 Durability

When properly specified and installed, the product will, in normal circumstances, remain effective for the lifetime of the building.

Installation

13 General

13.1 Installation of Aldercourse GRA Gas Resistant DPC must follow normal good practice for the detailing of damp-proof courses, as set out in PD 6697 : 2019, and must be in accordance with the relevant clauses of BS 8000-0 : 2014, BS 8000-3 : 2001, BS 8215 : 1991, BRE Digest 380 and the Certificate holder's instructions.

13.2 As with all flexible damp-proof courses, care should be taken to avoid impact damage from sharp objects (eg trowels) during installation.

13.3 Care must be taken to ensure joints are well made using Gastite Tape and that joints in cavity trays are supported by the Aldercourse GRA DPC Joint Support System.

14 Installation practice

14.1 The product must extend through the full thickness of the wall or wall leaf, including pointing, applied rendering or other facing material. It must project 5 mm beyond the finished external face.

14.2 The product must be laid on a wet, even bed of mortar, and perforations in adjacent courses of brickwork must be filled completely with mortar.

14.3 All joints in the product must have a minimum 100 mm overlap and be sealed using Gastite Tape in accordance with the Certificate holder's instructions. Joints must be supported across cavities using the Aldercourse GRA DPC Joint Support System.

14.4 Care must be taken to avoid damaging the product during the installation or during cavity cleaning following installation.

14.5 Precautions to be taken during subsequent work include:

- use of cavity battens to prevent mortar droppings from reaching the product
- removal of mortar droppings before they harden
- implements such as steel rods must not be used for cleaning the cavity
- inspection for damage as the work proceeds.

15 Dpc/dpm connections and continuity

15.1 To ensure its integrity as a gas barrier system, the product must be connected to a suitable gas-resistant, damp-proof membrane. Typical details for external wall to solid and suspended ground slabs are shown in Figure 2.

15.2 The product is hot bonded by torching to the primed floor slab and down the cavity face of the internal leaf or slab edge by a minimum of 75 mm, and must project onto the slab by a minimum of 150 mm beyond the internal face of the inner leaf.

15.3 The gas-resistant, damp-proof membrane (dpm) is overlapped by a minimum of 150 mm over the product and the laps sealed with 30 mm wide sealing tape.

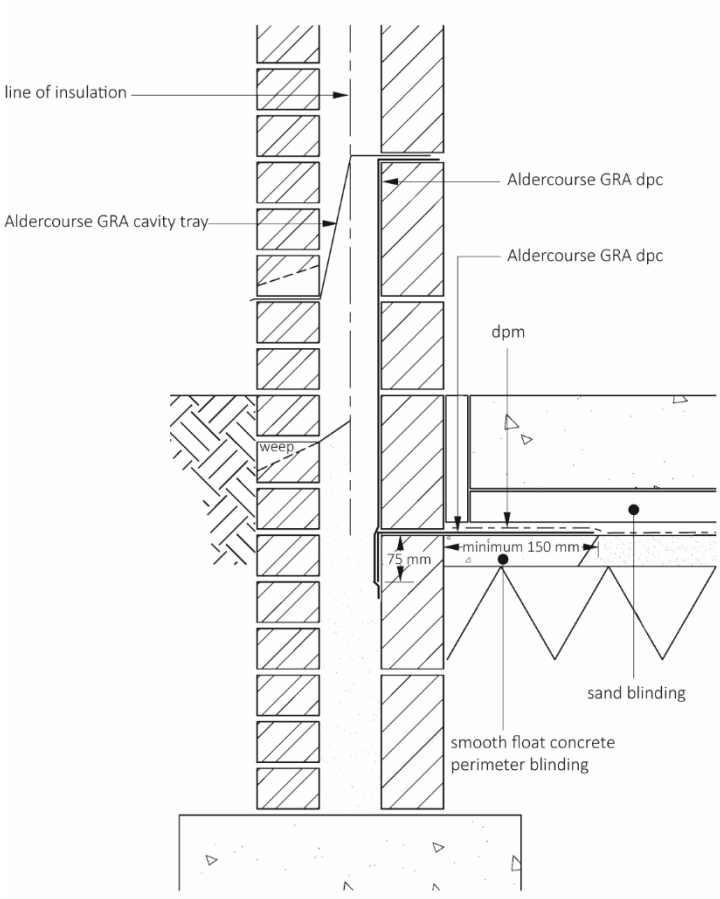
15.4 The product is applied to the primed inner leaf/slab edge and fully bonded by torching, ensuring that it terminates a minimum of 150 mm above the dpc or cavity tray in the outer leaf and completely overlaps the product applied around and down the edge of the slab (see section 15.2).

15.5 The product must be used to form a cavity tray linking with the waterproofing and finishing in the outer leaf by a minimum of 150 mm above the finished external ground level.

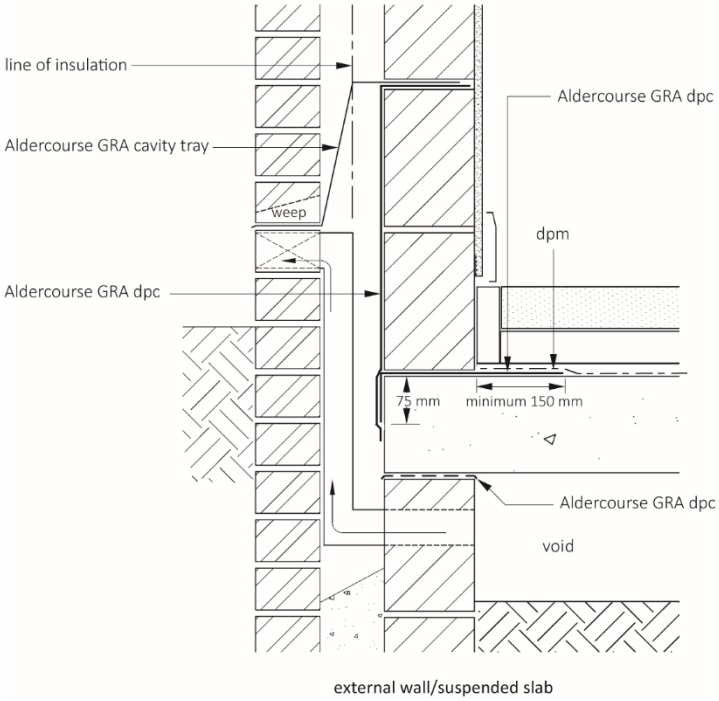
16 Repair

Damaged areas of the product can be repaired prior to being covered by cutting out and replacing the damaged section, ensuring joints are made in accordance with section 14.3. Once covered, the product cannot be repaired.

Figure 2 Dpc/dpm gas membrane connections and continuity



external wall/solid ground slab



external wall/suspended slab

Technical Investigations

17 Tests

Tests were conducted and results assessed to determine:

- mass per unit area
- resistance to water pressure
- water vapour permeability
- water vapour resistance
- resistance to static indentation
- resistance to chisel impact
- creep tests
- characteristic initial shear strength
- tensile strength and elongation
- flexibility at low temperature
- effect of heat ageing (for 56 days at 60°C)
- effect of water soak (for 7 days at 60°C)
- nail tear.

18 Investigations

18.1 An evaluation was made of the results of test data regarding permeability of radon, methane and carbon dioxide.

18.2 The manufacturing process was evaluated, including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

18.3 A survey of users and/or specifiers of the product was carried out.

Bibliography

BRE Digest 380 *Damp-proof courses*

BRE Digest 414 *Protective measures for housing on gas-contaminated land*

BRE Report BR 211 *Radon : guidance on protective measures for new dwellings*

BRE Report BR 212 *Construction of new buildings on gas-contaminated land*

BS 6398 : 1983 *Specification for bitumen damp-proof courses for masonry*

BS 8000-0 : 2014 *Workmanship on construction sites — Introduction and general principles*
BS 8000-3 : 2001 *Workmanship on building sites — Code of practice for masonry*

BS 8215 : 1991 *Code of practice for design and installation of damp-proof courses in masonry construction*

BS EN 1062-6 : 2002 *Paints and varnishes — Coating materials and coating systems for exterior masonry and concrete — Determination of carbon dioxide permeability*

BS EN 1996-1-1 : 2005 + A1 : 2012 *Eurocode 6: Design of masonry structures — General rules for reinforced and unreinforced masonry structures*
NA to BS EN 1996-1-1 : 2005 + A1 : 2012 UK National Annex to *Eurocode 6: Design of masonry structures — General rules for reinforced and unreinforced masonry structures*
BS EN 1996-1-2 : 2005 *Eurocode 6: Design of masonry structures — General rules — Structural fire design*
NA to BS EN 1996-1-2 : 2005 UK National Annex to *Eurocode 6: Design of masonry structures — General rules — Structural fire design*
BS EN 1996-2 : 2006 *Eurocode 6: Design of masonry structures — Design considerations, selection of materials and execution of masonry*
NA to BS EN 1996-2 : 2006 UK National Annex to *Eurocode 6: Design of masonry structures — Design considerations, selection of materials and execution of masonry*
BS EN 1996-3 : 2006 *Eurocode 6: Design of masonry structures — Simplified calculation methods for unreinforced masonry structures*
NA to BS EN 1996-3 : 2006 UK National Annex to *Eurocode 6: Design of masonry structures — Simplified calculation methods for unreinforced masonry structures*

BS EN 13501-1 : 2018 *Fire classification of construction products and building elements — Classification using data from reaction to fire tests*

BS EN 14967 : 2006 *Flexible sheets for waterproofing — Bitumen damp proof courses — Definitions and characteristics*

BS EN ISO 9001 : 2015 *Quality management systems — Requirements*

ISO 15105-1 : 2007 *Plastics — Film and sheeting — Determination of gas-transmission rate — Differential-pressure methods*

PD 6697 : 2019 *Recommendations for the design of masonry structures to BS EN 1996-1-1 and BS EN 1996-2*

19 Conditions

19.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page – no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- is valid only within the UK
- has to be read, considered and used as a whole document – it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English Law.

19.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

19.3 This Certificate will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

19.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

19.5 In issuing this Certificate the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to CE marking.

19.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.

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